

THE PRELIMINARY STUDY OF THE PHYMATIDAE IN INNER MONGOLIA, CHINA (HEMIPTERA, PHYMATIDAE)

By Nonnaizab*, Nicholas A. Kormilev** and Qi Baoying*

Abstract: This paper reports 7 species belonging to two genera in two subfamilies of Phymatidae recorded from Inner Mongolia, among them three are new species, *Cnizocoris mongolicus*, n. sp., *C. unicellularis*, n. sp. and *C. acellularis*, n. sp.. *Phymata crassipes chinensis* Drake, 1947, was raised to the specific rank.

Key words: Phymatidae, Heteroptera, Inner Mongolia, new species

From previous reports we know that 35 species & one unidentified, belonging to 8 genera and 3 subfamilies of Phymatidae were recorded from China (Hsiao et al., 1981: 374). But there have no detailed reports about Inner Mongolia Phymatidae. The 1st & 3rd authors collecting in Inner Mongolia identified two genera and 7 species belonging to Phymatinae and Macrocephalinae, among them 3 new species of the genus *Cnizocoris* Handlirsch, 1897. The type specimens of the new species are deposited at the Department of Biology, Teachers' University of Inner Mongolia in Huhe-hot, P. R. China.

1. *Phymata crassipes* (Fabricius), 1775.

Phymata crassipes (F.) is widely distributed across Middle and Southern Europe, North Africa, Eastern Siberia, Northern China, Korea and Japan. In Inner Mongolia was recorded from Xing'an League, Irshi. The other Chinese records are: Jilin Province (Changbai Mountains) and Heilongjiang Province (Harbin) (Hsiao et al., 1981).

2. *Phymata chinensis* Drake, 1947.

Distribution: Inner Mongolia (Xing'an League: Irshi). In China was recorded from Beijing, Tianjin, Shandong and Shanxi (Hsiao et al., 1981).

Drake described *Phymata chinensis* as a species (1947: 145). Kormilev discussed its position and said that it is probably only a subspecies of *crassipes* Fabricius (1951: 50). Maa & Lin synonymized it with *P. crassipes* (F.) (1956: 113). Kormilev after getting a paratype from Drake reduced it to geographical subspecies—*Phymata crassipes chinensis*. Hsiao et al., (1981: 374) accepted the opinion of Kormilev. But in recent years we collected both of these two forms in the same area of Inner Mongolia (Xing'an League: Irshi), so their areas of distribution clearly overlap and they can not be considered as geographical subspecies, but as two different species.

*Biology Department, Teachers' University of Inner Mongolia, Huhe-hot, Inner Mongolia, P. R. China.

**Research Associate in Entomology, B.-P. Bishop Museum, Honolulu, Hawaii; Member of the New York Academy of Sciences; Mailing address: 6924 Gulfport Blvd. S., Gulfport, Florida, U. S. A., 33707.

1. *Cnizocoris mongolicus*, sp. nov.

Figs. 1—2

Female: Elongate ovate; head, anterior border of pronotum, base of scutellum and anterior portions of propleura and mesopleura yellowish granulate. Hind lobe of pronotum, anterior half of scutellum and corium of hemelytra finely punctured.

Head cylindrical, longer than width across eyes (12.5 : 6.7); preocular portion shorter than postocular (3.0 : 9.5). Distance between ocellus and posterior margin of head longer than between ocelluseyes distance (2.5 : 2). Antennae 2.75 times as long as width across eyes (18.9 : 6.7). In ratios of 0.15 mm. = 1 unit, relative length of antennal segments 5 : 2. 6 : 2. 8 : 8. Antennal segment I cylindrical, granulate dorsally; II ovate; III inversely coniform; IV fusiform with light short hairs and acute apex. Eyes rounded, reddish. Labium short and strong; relative length of labial segments 6 : 5. 8 : 3.

Pronotum shorter than width across lateral angles (17 : 25). Anterior border sinuate; lateral border of fore lobe straight; anterolateral border of hind lobe convex; posterolateral border wavy sinuate; posterior border slightly sinuate. Fore lobe shorter than hind lobe (8 : 9); anterior angles acutely pointing forwards; carinae on the fore lobe lower; disc of hind lobe swollen and roughly punctured; lateral angles acute, slightly raised upwards; carinae on hind lobe higher and reaching only to middle of disc. Posterior angles minute.

Scutellum triangular with blunt tip, slightly longer than its width at base (11 : 10); basal portion swollen and granulate; apical portion flat, finely punctured.

Hemelytra not reaching tip of abdomen; corium finely punctured; membrane larger with a small triangular closed cell within a large quadrangular cell.

Abdomen broad; almost entire connexivum and a strip of tergum are exposed. Tip of abdomen deeply and roundly incised. Venter very convex, with a few scattered granules.

Legs: fore femora longer than width (17 : 7); coxa long. Tibiae and tarsus with suberect short hairs.

Colour head with 2 (1 + 1) dark brownish longitudinal bands; body light yellowish brown; pronotal carinae yellowish brown on the fore lobe; lateral angles dark brown; scutellum with a black spot at base, apex light coloured. Corium with yellowish anterolateral border; abdomen light yellowish, posterior border of segment IV and tip brown; tibiae and tarsus of middle and hind legs reddish, claws brown.

Measurements: total length, ♀ 11.25 mm.; width of pronotum 3.75 mm.; width of abdomen 5.55 mm.

Holotype: ♀, INNER MONGOLIA, Ulaantsav League; Liangcheng County, Manhan Hills, 1600m., Nonnaizab coll., Aug. 30, 1988.

Cnizocoris mongolicus n. sp. is related to *C. sinensis* Kormilev, 1957, but pronotum relatively broader; anterolateral border of hind lobe convex; corium of hemelytra with one small closed cell and tip of abdomen deeply incised.

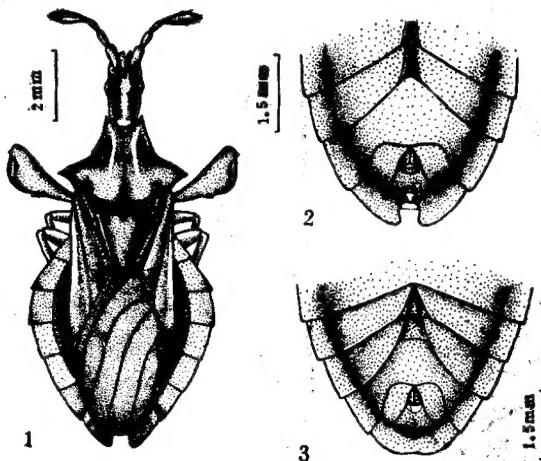
2. *Cnizocoris unicellularis*, sp. nov.

Figs. 4—9.

Male: Elongate ovate; head, middle of the fore lobe of pronotum, anterolateral border, carinae, posterior border, scutellum and the posterior border of mesoplurae granulate; hind lobe of pronotum roughly punctured, scutellum and corium of hemelytra finely punctured.

Head about twice as long as its width across eyes (11 : 6); upper surface with a deep pit in the middle; preocular portion shorter than postocular (3 : 5.3); distance between ocelli and posterior

margin of head longer than ocellus-eye distance (3 : 2); head behind eyes slightly wider than anterocular portion. Antennae about 3× as long as width of head across eyes (19.5 : 6); relative length of antennal segments 4 : 2.5 : 3 : 10. Antennal segment I cylindrical, II obovate, III inversely coniform, IV fusiform, with adpressed short hairs. Labium strong with its tip pointed to middle of prosternum; relative length of labial segments 5 : 5. 4 : 3.5.



Figs. 1—2 *Cnizocoris mongolicus* sp. nov., ♀

Fig. 3 *Cnizocoris sinensis* Kormilev, ♀

Pronotum shorter than its width across lateral angles (14.5 : 20); anterior border sinuate, lateral border of fore lobe and anterolateral border of hind lobe straight, posterolateral borders sinuate twice, posterior border convex; fore and hind lobe about equal in length; anterior angles acute, pointing forwards; lateral angles raised upwards and slightly curved backwards, carinae on the hind lobe short but distinct, reaching middle of disc; posterior angles minute.

Scutellum triangular, about as long as its width at base (9 : 8), base slightly swollen and dispersely granulate; apical portion finely punctured; apex blunt.

Hemelytra not reaching tip of abdomen; corium finely punctured; membrane with a quadrangular closed cell, 3× longer than width.

Abdomen narrower, only connexivum exposed, slightly arised; posterolateral angles of connexiva V acute, protruding; tip subtruncate, slightly sinuate. Venter with dispersely granulation.

Pleurae sparsely and dispersely granulate.

Legs fore femora about twice as long as its width; coxa strong and long; middle and hind femora and tibia with suberected short hairs; tarsus with longer hairs.

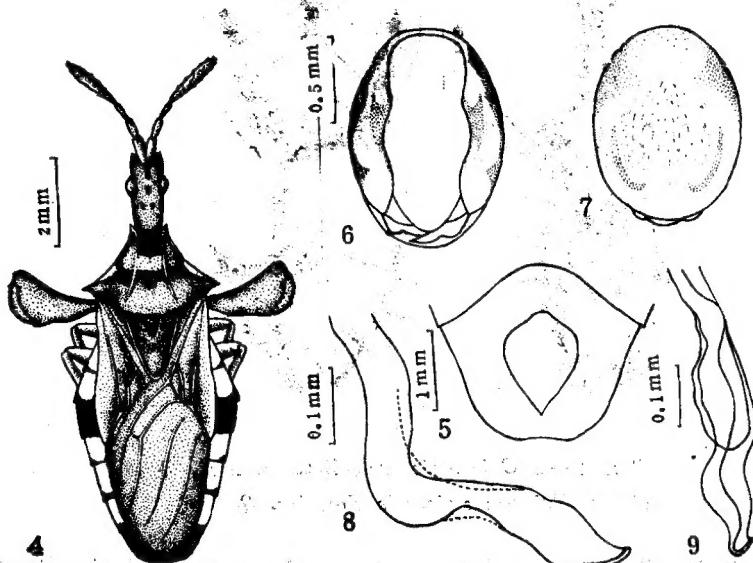
Colour head black on upper surface; antennae brown with black upper surface on segments I and II; lateral angles of pronotum black, posterior angles yellowish; lateral border of scutellum yellowish; connexivum pale yellow, posteroexterior angles of connexiva, border of connexivum III, the whole connexivum IV, anterior border of V and posterior borders of VI and VII are black; tip of abdomen dark brown; venter with 2 (1+1) longitudinal reddish bands; anterior border of pleurae yellowish; granulation yellowish.

Measurements: total length: ♂—9.0 mm., ♀—10.06 mm.; width of pronotum ♂—3.0 mm., ♀—3.1 mm.; width of abdomen ♂—3.3 mm., ♀—4.65 mm.

Holotype: ♂, INNER MONGOLIA, Huhe-hot; Lamadong, 1,300 m.; Nonnaizab coll. Sept. 13,

1984. Cnizocoris unicellularis sp. nov., Wang et al., Entomologische Zeitschrift, 1984, 62(1), 1-10.
 Allotype: ♀, INNER MONGOLIA, Baotou, Jiufeng Mountains, 2,300 m., Nonnaizab coll., Aug. 29, 1987.
 Paratype: ♂, INNER MONGOLIA, Ulaantsay League; Liangcheng County; Manhan Hills, 1,600 m., Nonnaizab coll., Aug. 30, 1987.

Cnizocoris unicellularis n. sp. is related to *C. sinensis* Kormilev, 1957, but membrane has one small closed cell and by different parameres.



Figs. 4—9. *Cnizocoris unicellularis* sp. nov., ♂

3. *Cnizocoris acellularis* sp. nov.

Male: Elongate-ovate. Head, antennal segment I, anterior portion of fore lobe of pronotum, posterolateral border of hind lobe and basal portion of scutellum granulate; hind lobe of pronotum and scutellum roughly punctured; corium finely punctured.

Head about twice as long as width of head across eyes ($11.5 : 6$); head with deep pit in the middle; preocular portion shorter ($3 : 8.5$) and slightly narrower than postocular. Antennae about three and a half times as long as width of the head across eyes; relative length of antennal segments: $5 : 2.2 : 3 : 10$; labium strong, relative length of labial segments $5 : 5 : 2.5$; its apex pointing the middle of prosternum; labial palps as long as labium; labial margin slightly raised upwards and

Pronotum shorter than its width across lateral angles ($14.5 : 22.5$); anterior border of fore lobe sinuate; lateral border of fore lobe and anterolateral border of hind lobe straight; posterolateral border sinuate and finely granulate; anterior angles acute and pointing forwards; lateral angles acute and distinctly raised upwards; hind lobe convex; carinae higher, reaching $3/4$ of disc; posterior angles minute.

Scutellum about as long as its basal width and finely punctured; base slightly swollen and granulate; apex blunt.

Hemelytra corium finely punctured; membrane slightly surpassing tip of abdomen.

Abdomen with connexivum and a very narrow strip of tergum exposed; posterolateral angles of connexiva acute, slightly protruding; tip of abdomen almost truncate, slightly sinuate.

Pleurae granulate.

coxae ixnæ

Legs fore femora 2.6 times as long as their width; coxa long and strong, with short, suberected hairs on ventral side; middle and hind femora with sparse, adpressed hairs; tibiae with suberected short hairs on apex and ventral side.

Colour body dark brown; head black on dorsal side; antennæ brown; labial segments I and II dark brown on dorsal side, III yellowish brown; lateral angles of pronotum dark brown, carinae black; granulation of scutellum yellowish; hind angles yellowish; middle of scutellum with black spots; borders yellowish; exterior border of corium yellowish at base; connexivum, and exposed portion of tergum yellowish; posterior angles of connexiva, posterior border of connexivum III, entire connexivum IV, anterior border of V, posterior border of VI and tip of the abdomen black; venter pale yellow with whitish powder and with 2 ($1+1$) red bands; pleurae with yellowish granulations; legs brown, tibiae yellowish brown, tarsus and claws also yellowish brown.

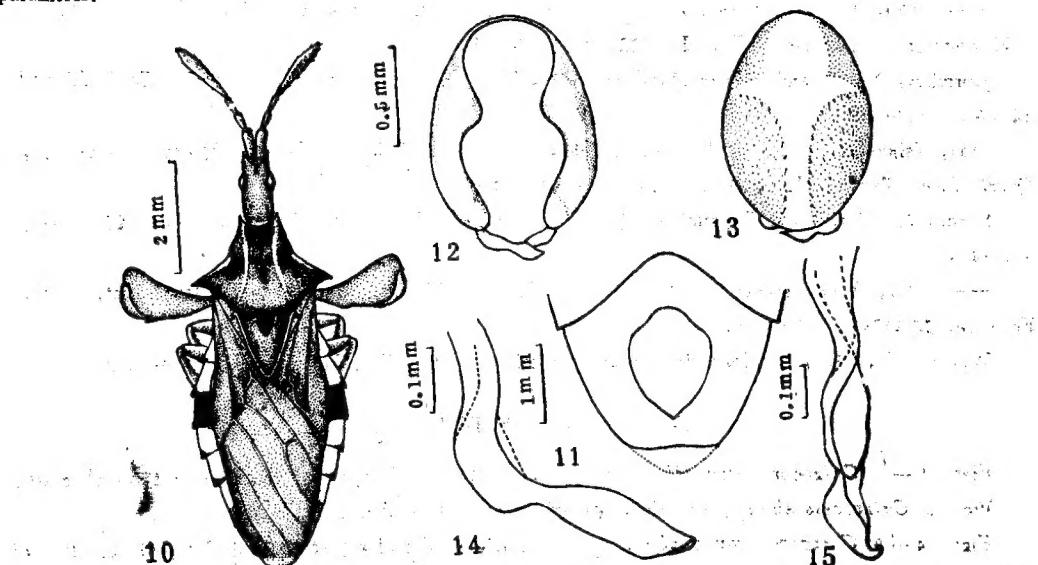
Measurements ♂, total length 9.30 mm.; width of pronotum 3.33 mm.; width of abdomen 3.75 mm.

Holotype, ♂, INNER MONGOLIA, Ulaantsav League; Liangcheng County; Manhan Hills, 1,600 m.; Nonnaizab coll. Aug. 30, 1986.

Allotype, ♀, INNER MONGOLIA, Huhe-hot; Xiaojinggou, 1,350 m.; Liu Qiang coll. Aug. 30, 1987.

Paratype, ♂, INNER MONGOLIA, Huhe-hot; Xiaojinggou, 1,350 m.; Liu Qiang coll. Aug. 30, 1987.

Cnizocoris acellularis n. sp. is related to *C. sinensis* Kormilev, 1957, but lateral angles of pronotum distinctly raised; hemelytra surpassing tip of abdomen; parameres different. This species is also related to *C. unicellularis* n. sp., but without small closed cells on membrane and with different parameres.



Figs. 10—15 *Cnizocoris acellularis* sp. nov., ♂

4. *Cnizocoris shanxiensis* Hsiao et Liu, 1979.

Distribution: INNER MONGOLIA, Huhe-hot; Daqing Mountains; Baotou; Badgar Monastery; Ulaantsav League; Manhan Hills. Hsiao & Liu (1979) and Hsiao et al., (1981) recorded it from

Shanxi province.

5. *Cnizocoris sinesis* Kormilev, 1957.

Distribution: INNER MONGOLIA, Huhe-hot; Daqing Mountains; Baotou; Badgar Monastery; Jiuseng Mountains; Ulagntsav League; Manhan Hills. Hsiao et al., (1981) recorded it from Hubei Province.

Acknowledgement: We are very grateful to Mrs. Bao Hong Ying for execution of excellent drawings. We also appreciate great help from other persons who did hard works in collecting and preparing specimens.

REFERENCES.

Bianchi, V., 1889, Ad cognitionem Phymatidarum Mundi Antiquis Ann. Mus. Zool. St. Petersbug, 4 : 221—236.

Drake C. J., 1947, A new Phymatid from China (Hemiptera), Musee Heude, Notes d'Ent. Chinoise, 11 (4) : 145—148.

Handlirsch, A., 1897, Monographie der Phymatiden, Ann. Naturh. Hofmus., Wien, 12: 127—230, tables IV—IX.

Hsiao Tsai Yu et al., 1981, A Handbook for the determination of the Chinese Hemiptera-Heteroptera, Phymatidae, 2 : 374—389, Tables 51—54.

Kormilev, N. A., 1957, Notes on Oriental Phymatidae (Hemiptera), the Oriental Phymatidae in the Drake collections Quart. Jour. Taiwan Mus., 10 (2) : 64—69.

—, 1962, Notes on African and Asiatic Macrocephalinae (Hemiptera, Phymatidae), Ann. Mag. Nat. Hist., Ser. 13, 5 : 349—367.

—, 1970, New records of some Oriental Phymatidae, with a new species of *Chelocoris* Bianchi (Heteroptera-Phymatidae), Pac. Ins. 12 (4) : 883—886.

Kormilev, N. A. and P. van Doesburg, 1986, Notes on Phymatidae (Heteroptera). Zool. Meded. 60 (8) : 113—127.

Maa, Tsing-chao and Lin, Kuei-shin, 1956, A Synopsis of the Old World Phymatidae (Hem.), Quart. Jour. Taiwan Mus., 9 (2) : 109—154, 4 Plates.

Sonan, Jinhaku, 1935, Phymatidae of Formosa, Trans. Nat. Hist. Soc. Formosa, 25 (146) : 401—403.

—, 1937, A new species of Phymatidae in Formosa (Hemiptera), Trans. Nat. Hist. Soc., Formosa, 27 (166) : 175—176.

Wu, C. F., 1935, Catalogue Insectorum Sinensium, Order XVI, Hemiptera, p. 451—452.

EXPLANATION OF DRAWINGS.

Figs. 1—2 *Cnizocoris mongolicus* sp. nov., ♀, 1. dorsal aspect 2. ventral aspect of abdomen.

Fig. 3 *Cnizocoris sinesis* Kormilev, ♀, ventral aspect of abdomen.

Figs. 4—9 *Cnizocoris unicellularis* sp. nov., ♂, 4. dorsal aspect 5. ventral aspect of tip of abdomen 6. genital segment dorsal view 7. genital segment ventral view 8. paramere dorsal view 9. paramere side view.

Figs. 10—15 *Cnizocoris acellularis* sp. nov., ♂, 10. dorsal aspect 11. tip of the abdomen ventral aspect 12. genital segment dorsal view 13. genital segment ventral view 14. paramere dorsal view 15. paramere side view.

内蒙古瘤蝽科昆虫的初步研究

(半翅目：瘤蝽科)

能乃扎布 Nicholas A. Kormilev 齐宝瑛

摘要

本文记载了内蒙古瘤蝽科昆虫 7 种，分别隶属于 2 亚科、2 属，其中包括了蒙蝗瘤蝽 *Cnizocoris mongolicus* sp. nov.、单室蝗瘤蝽 *C. unicellularis* sp. nov. 和无室蝗瘤蝽 *C. acellularis* sp. nov. 3 个新种。另外，对瘤蝽属中 *Phymata crassipes chinensis* Drake, 1957 的分类地位做了订正，视之为独立的种：中国原瘤蝽 *Phymata chinensis* Drake.